



Defense Information Systems Agency

**A Combat Support Agency**

# **JITC Interoperability Certification Process**

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**JITC Policy Team  
13 August 2009**

# Agenda

- **Interoperability Directives and Instructions**
- **Joint Interoperability Test Certification**
  - **Interoperability Testing Guidelines**
  - **Standards Conformance Testing Guidelines**
  - **Types and Environments**
  - **Four Steps Toward Certification**
- **Certification Support Team**

# **DISA** Directives & Instructions

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## **DODD 4630.5**

“IT and NSS interoperability shall be verified early, and with sufficient frequency throughout a system’s life ...”

## **CJCSI 6212.01E**

“All IT and NSS must be evaluated and certified for Joint interoperability by **DISA (JITC)**.”

## **DoD 4630/5000**

**Interoperability is**

“the ability to provide and accept data, information, material, and services ...  
...includes both the technical exchange of information and the end-to-end operational effectiveness of that exchange, as required for mission accomplishment.”

## **DODI 4630.8**

“All IT and NSS ... must be tested for interoperability before fielding ... and certified by **DISA (JITC)**.”

## **CJCSI 3170.01G**

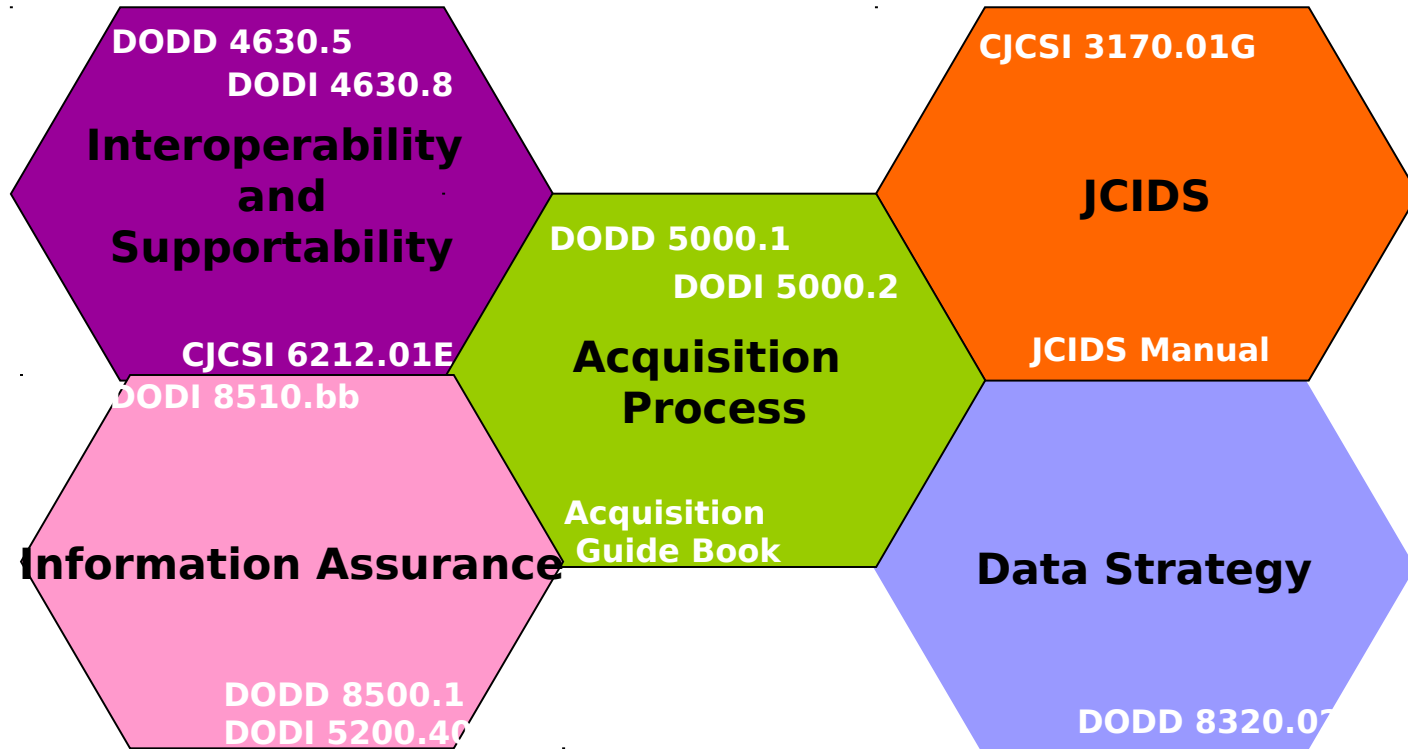
**Establishes JCIDS w/ NR-KPP for CDD and CPD**

## **DoD 5000 series**

“For IT systems, including NSS, .. **JITC** shall provide system interoperability test certification memoranda ... throughout the system life-cycle and regardless of ACAT”

# Net-Centric/Interoperability Guidance

[http://jitc.fhu.disa.mil/jitc\\_dri/jitc.html](http://jitc.fhu.disa.mil/jitc_dri/jitc.html)



# What is NR-KPP?

- **A top-down key performance parameter, which replaced the previous Interoperability KPP**
- **Intent of the KPP is to:**
  - *Define the Warfighter's primary information capability needs*
  - *Provide authoritative, measurable and testable characteristics, and/or performance metrics required for the timely, accurate, and complete exchange and use of information*
- **NR-KPP is applicable to:**
  - ✓ **ACAT IT and NSS Systems/Programs**

# **DODD 4630.5/.8**

- **Defines a capability-focused, effects-based approach to advance interoperability and supportability across the Department of Defense**
- **Joint interoperability certification shall be successfully completed prior to fielding**
- **Establishes the NR-KPP to assess net-ready attributes required for both the technical exchange of information and the end-to-end operational effectiveness of that exchange**

# **DODI 5000.2 Guidance**

## **Applies to:**

- **All DOD Major Defense Acquisition Programs (MDAPs)**
- **Programs on Office of the Secretary of Defense (OSD) Test and Evaluation (T&E) Oversight List**
- **Post-acquisition (legacy) systems**
- **All programs & systems that interoperate**
- **All defense technology projects and acquisition programs, except where stated otherwise**

**“...subject to interoperability evaluations throughout their life cycles to validate their ability to support mission accomplishment.”**

***JITC shall provide system interoperability test certification memoranda to the Director, Joint Staff J-6, throughout the system life-cycle and regardless of acquisition category.***

# CJCSI 6212.01

## Test/Certification Guidance

- JITC evaluates interoperability in the **most operationally realistic environment possible**
- ...determines if the system conforms to applicable standards
- ...ensures data collected is adequate for evaluating interoperability issues
- Details the Net-Ready Key Performance Parameter

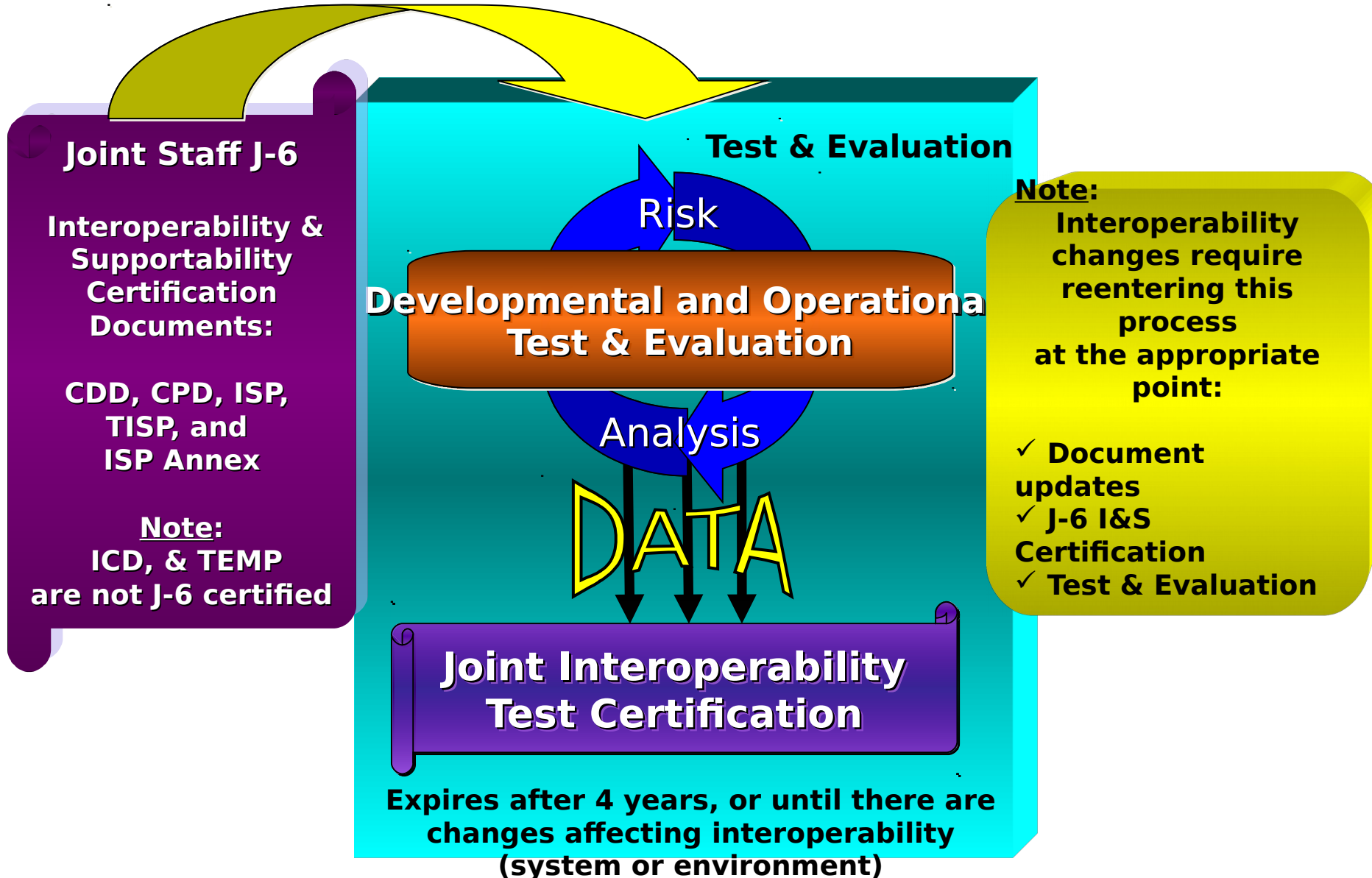




# **Joint Interoperability Test Certification**

# DISA NR-KPP T&E Process

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# Interoperability Testing Guidelines

- **Use Interoperability Certification Evaluation Plan (ICEP) to manage system certification where applicable**
- **JITC must use a production representative sample for interoperability testing and certification**
- **Test to Joint Staff J-6 certified requirements (CPD, ISP, TISP, ISP Annex, or NR-KPP Package)**
  - **JITC can not certify non-US systems for interoperability**
  - **Must certify ALL requirements for a particular increment/spiral**

# **Interoperability Testing Guidelines (Continued)**

- **Provide operationally realistic, end-to-end testing**
- **Conduct system-level interoperability evaluations/certifications (not “interface” certs)**
  - **Limited Interoperability Test Certification and Standards Conformance Certification are available (described later)**
- **Document incremental system progress toward certification**
- **Characterize and certify using affordable confidence level**

# **Interoperability Testing Guidelines (Continued)**

- **Each program / system has a JITC Capability Test Team (CTT) lead responsible for program / system issues**
  - **Leading and coordinating: requirements document review, funding, planning, testing, and certification tasks**
  - **Putting together test team drawing on SMEs from appropriate support divisions**
  - **Keeping STP entry current with status and results**
- **Support legacy as well as traditional and non-traditional acquisitions**

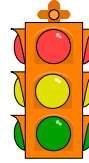
# **Standards Conformance Testing Guidelines**

- **Standards conformance testing establishes the extent to which a system conforms to the requirements of a standard**
  - **Standards conformance is necessary, but not sufficient to ensure interoperability**
- **JITC may certify conformance to standards for systems (IT/NSS or non-US) that implement standards that can possibly impact interoperability**
  - **DOD and Commercial customers**
  - **Conformance to various standards**
    - **UHF DAMA SATCOM, HF Radio MIL-STD, Secure Fax, etc.**

# **Standards Conformance Testing Guidelines (Continued)**

- **JITC SME will determine which standards require testing vs. some other evaluation method**
- **JITC may also evaluate conformance to NATO STANAGs and issue a standards conformance certification**
- **Standards Conformance Certifications do not normally expire**
  - **A specific hardware/software version is certified conformant to a specific version of a standard**

# Testing Types and Environments



Certification



## Standards Conformance

- Ability to adhere to rules contained in applicable standards
- Increasing emphasis on data implementation IAW DoD Data Strategy

## Laboratory +

Comprehensive data collection for multiple tests under controlled conditions. Can include early user tests, Beta testing, FDCE environment, etc.



## Joint Interoperability

Ensures a system effectively exchanges information with other participants in a Net-Centric environment



## Live Exercise

Test ability to effectively exchange information in an exercise or test environment with conditions as realistic as possible. Ensures end-to-end interoperability.

**Standards provide a necessary building block for ensuring interoperability, but are not sufficient to ensure that systems are interoperable in a joint environment**



# What Does Certification Involve?

## Four Basic Steps

### Step 1:

**Identify & Verify  
Interoperability  
Requirements**

### Step 2:

**Develop  
Certification  
Evaluation  
Approach**

### Step 3:

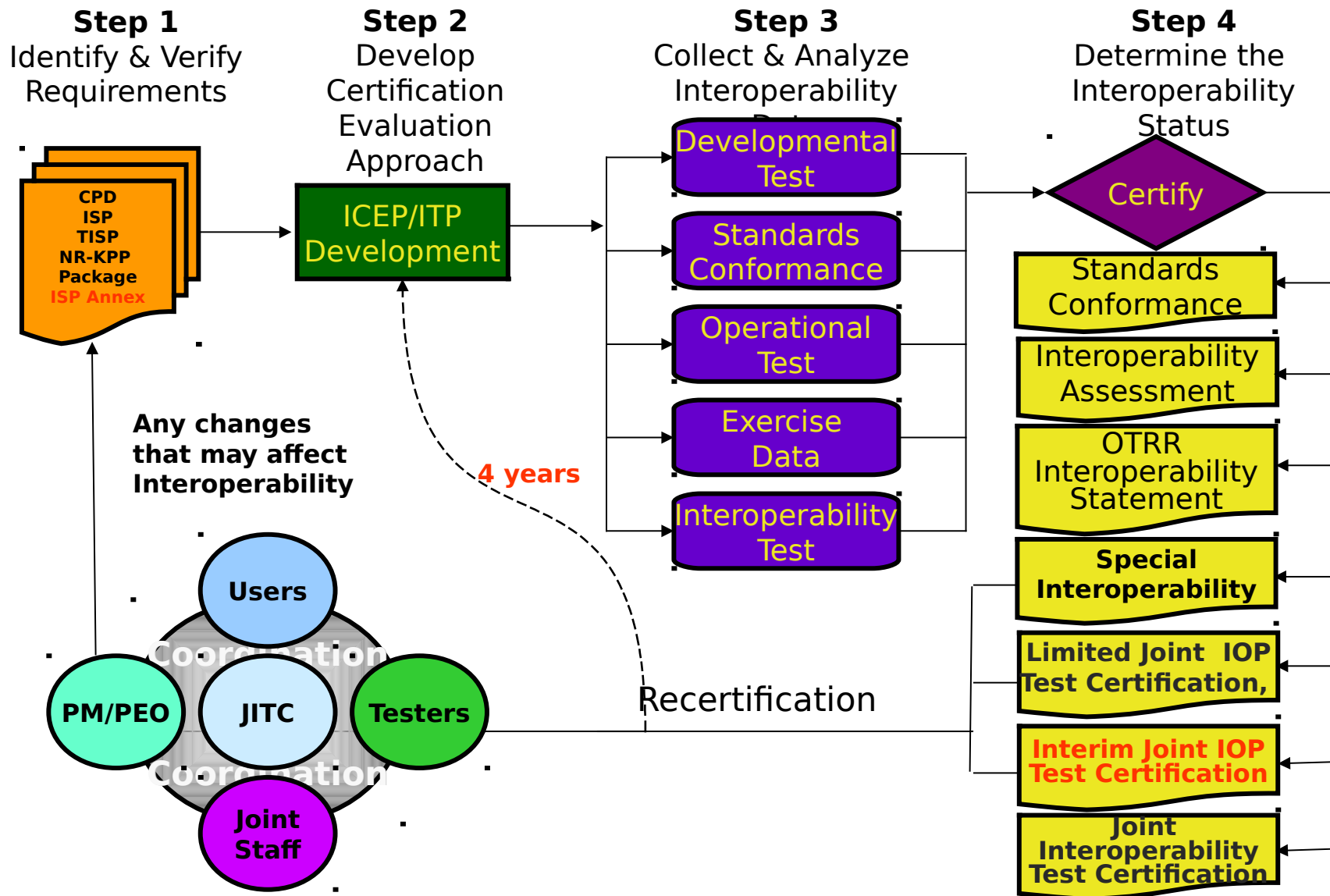
**Collect &  
Analyze  
Interoperability  
Data**

### Step 4:

**Determine the  
Interoperability  
Status**

**Certification Status**

# Interoperability Certification Steps



# STEP 1

## Step 1:

**Identify & Verify  
Interoperability  
Requirements**



# Has Certified Requirements?

- **Knowledge Management/Decision Support Tool:**

<https://jrockmds1.js.smil.mil/guestjrcz/gbase.guesthome>

- **J6 Assessment Tool - Located in the Joint C4I Program Assessment Tool - Empowered (JCPAT-E) Tool Suite:**

<https://jcpat.ncr.disa.smil.mil/jecoweb.nsf>

- **Primarily used for staffing the requirements/capability document in support of the J-6 Interoperability / Supportability Certification.**

# Certified NR-KPP

- **Joint Staff J-6 will certify interoperability and supportability requirements for JCIDS documents for all ACAT**
- **JITC interoperability evaluations must be based on the complete NR-KPP for the particular increment**
  - **Increments (phases, blocks, releases, etc.) for evolutionary developments (including “spirals”) must have an NR-KPP for each increment - if not, the entire NR-KPP must be used**
- **NR-KPP can not be modified without the new NR- KPP being JS J-6 certified**

# **Systems Without Certified Requirements**

- **PM should coordinate with the Joint Staff J-6 regarding requirements issues before JITC certification**
- **J6 POC is:**

**Joint Staff J68 Net Centric Capabilities  
Pentagon, Room 2A872**

**DSN: 671-9839**

**Comm: 703-571-9839**



# **Systems With Testing Issues**

- **Joint Staff J-6 POC is:**

**Joint Staff J65B Joint Testing Branch**

**Room 1E596**

**DSN: 222-0905**

**Comm: 703-692-0905**

# Systems with Requirements Issues

- Use Joint Staff J-6 and the Interoperability Test Panel to resolve interoperability (req's/testing/ certification) issues, when needed.
- Assessment memorandum:
  - JITC can perform interoperability testing and issue an interoperability assessment memorandum without JS-certified requirements.

**JITC interoperability test certification  
memoranda  
may not be validated by JS without**



# STEP 2

## Step 2:

**Develop  
Certification  
Evaluation  
Approach**

# Testing Guidelines

- **Inform Program Manager about the evaluation and certification process**
- **Identify all valid interoperability requirements and criticality**
- **Ensure requirements are well-defined and testable**
- **Determine what testing is necessary to assess all the requirements (i.e., identify the right thing to do)**
- **Identify project constraints - time, equipment, funding, personnel**
- **Perform cost/benefit analysis - affordable confidence level**
- **Prioritize testing - if we can't test everything**

# How Much Testing is Enough

- **Scope of testing depends on:**
  - **Mission criticality**
  - **System complexity**
  - **Number and criticality of the interfaces**
  - **Maturity of technology**
  - **System performance in the field, exercises, participation in other tests, etc.**

**JITC SMEs will make determination  
Focus on quality rather than quantity of tests**

# Interoperability Certification Evaluation Plan

## Interoperability Certification Evaluation Plan (ICEP)

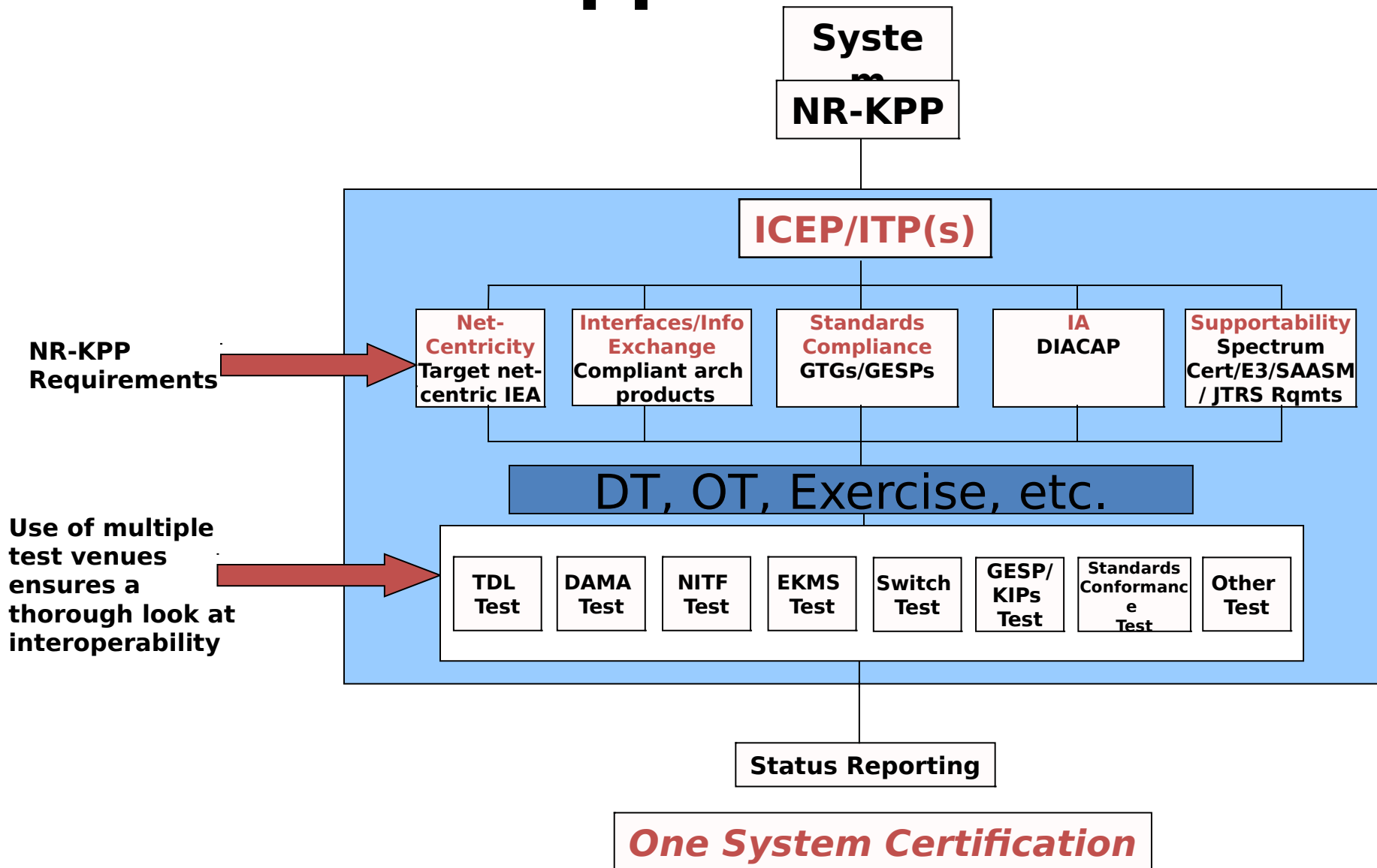
- Complex system or FOS/SOS
- Multiple evaluation events
- Significant reliance on non-JITC tests

## JITC Interoperability Test Plan (ITP)

- System is not complex
- Few evaluation events
- JITC performs majority of the testing

**ITP(s) always required for JITC tests - ICEP may also be needed.**

# System Certification Approach Model



# STEP 3

## Step 3:

**Collect & Analyze  
Interoperability  
Data**

# **Collect & Analyze Interoperability Data**

- **Collect and examine all available valid data:**
  - **GTGs/GESPs, compliance with net-centric data and services strategies/DoD IEA, DoD IA requirements, information/data exchanges IAW compliant solution architecture products, Spectrum Certification and E3/SAASM/JTRS requirements**
- **Valid data must be:**
  - **Comprehensive**
  - **Accurate**
  - **Reliable and repeatable**
- **Analysis:**
  - **Unbiased**
  - **Conclusive results representing entire range of operational uses, configurations, and conditions**
  - **Assessment of expected operational impact for any discrepancies**

**Provide the warfighter/user with a complete picture of capabilities, problems, and risks**

# STEP 4

## Step 4:

**Determine the  
Interoperability  
Status**

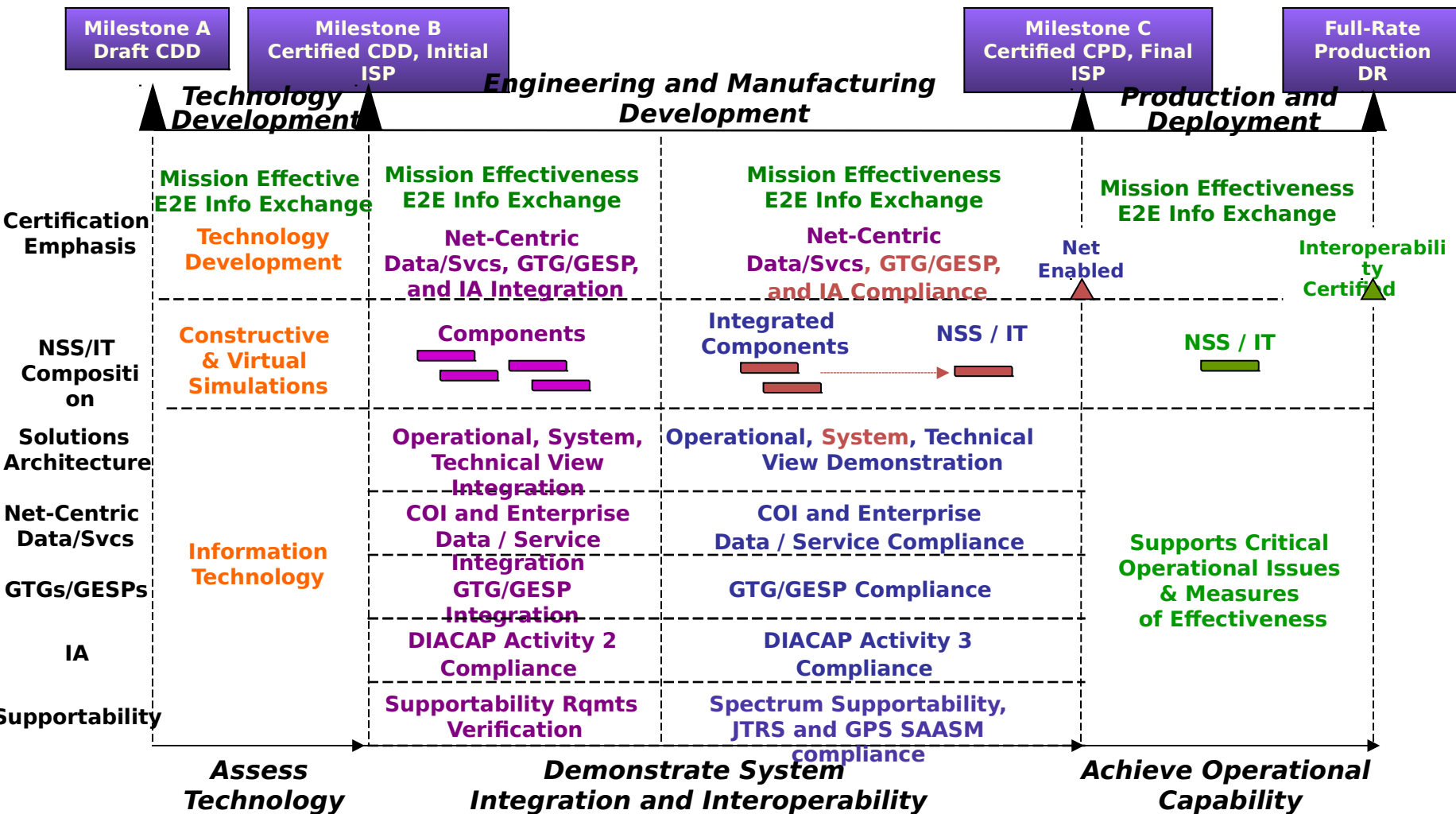


# Interoperability Test & Certification

Certification	Description	System can be fielded (Y/N)?
Standards Conformance Certification	System is certified for conformance to a standard/standards profile	No
Joint Interoperability Test Certification	Full system certification. System meets at least <u>all critical</u> interoperability requirements	Yes
Limited Joint Interoperability Test Certification	System meets <u>subset</u> of critical interoperability requirements	Yes, with ICTO
Interim Joint Interoperability Test Certification	A capability module has adequately demonstrated interoperability for at least <u>all critical</u> threshold requirements identified for the increment	Yes
Special Interoperability Test Certification	Based on other J-6 approved requirements (i.e., no NR-KPP) -- E.g., use of UCR for voice switches	Yes
Non-Certification	Critical operational impacts expected Provides a warning to the warfighter	No
Interoperability Assessment	PM would like to determine the interoperability status System may lack J-6 certified	No

# DISA NR-KPP Testing Timeline

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**NR-KPP evaluation approach developed before MS**



# Policy Team

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# Keys to Successful Implementation



**Early  
Involvement**

*JS-J6-  
certified  
Reqs  
JITC  
Funded  
Test  
Program*

**Close  
Coordination**

*PM, DT, OT,  
& User  
Communities*

**Rely On**

*Multiple  
Evaluation  
Events  
&  
Organizations*

**Standards  
Conformance**

*Not  
Sufficient  
But  
Necessary*

**Functional  
And  
Operational  
Interoperability  
A Must**

*Requires an  
Operationally  
Realistic  
Environment*

# Summary

- **Each system will have a single JITC POC to coordinate review of requirements documents, funding, planning, testing, and certification.**
- **Interoperability requirements must be certified by the Joint Staff J-6.**
- **Certification process applied to all systems:**
  - **ACAT, Non-ACAT, Fielded**

# Summary (Continued)

- **System-level Interoperability Test Certification:**
  - Meets all certified requirements
  - Tested in operationally realistic, end-to-end, environment
- **Incremental progress reported:**
  - Standards conformance certification
  - Interoperability assessment
  - Limited Joint Interoperability Test certification
- **Interoperability Test Certification issued by JITC validated by Joint Staff J-6.**



**Questions?**

